



Solutions for reducing indoor air pollution through access to modern off-grid lighting: opportunities and challenges of the private sector

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The problem

- 1.3 billion people have no access to electricity.
- Hundreds of millions use kerosene to light their homes after dark.
- Kerosene is costly, polluting and produces dim light.
- Families spend ~15% of household income on lighting.
- A single kerosene lamp emits up to 200kg of CO₂ a year.
- Health effects associated kerosene use; coughs, chest, flu-like symptoms.



SolarAid and GOGLA

- SolarAid's mission is to eradicate the kerosene lantern from Africa by 2020.
- SunnyMoney: SolarAid's social enterprise sells solar lights in rural Africa.
- The Global Off-Grid Lighting Association is an independent, not-for-profit association created to promote lighting solutions that benefit society and businesses in developing and emerging markets.



Research at SolarAid

- SolarAid have a strong research and impact measurement function.
- Mixed methods used.
- Market research and impact research.
- Over 13,500 research interactions since end 2012.



Impact

- Replaces use of one kerosene lamp
- 45% experience better health
- Average annual savings per household of US\$70
- Children study an extra hour a night
- Cost of light recouped in 10 weeks
- 40% of families cut all spending on lighting



Testimonials

- “My family members are not coughing anymore because they are not inhaling the toxic flames produced by the kerosene lights.” Mr Kibeneu, Kenya
- “Nowadays we don’t have allergies, coughing has reduced and we no longer have eye infections so my kids can study well.” Joseph Tuei, Kenya



Research in progress

- SolarAid have commissioned an RCT into the impact of solar lights on poverty alleviation.
- The study has an add-on looking at exposure rates to traditional lighting.
- Full-scale study unfunded but hopes to provide evidence on the role lighting plays in indoor air pollution and illness.



Solar lights as enablers

- Solar light adoption is less challenged by cultural practices.
- Fewer negative effects of switching light source.
- 90% of SunnyMoney customers live below the poverty line.
- Solar lights can provide an easier route to behaviour change.
- We can collaborate and cross-promote the adoption of clean cookstoves *and* clean solar lights.



One million lights

An estimated impact of:

- 6.2 million people benefitting from safe, clean light
- 5.6 million of those living below the poverty line
- US\$205 million saved by families over the lifetime of the light
- 1.2 billion extra study hours for children
- 3.4 million people noticing better health
- 510,000 tonnes of averted CO₂





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